

HP StorageWorks

4000/6000/8000 Enterprise Virtual Array connectivity 5.0B for Linux release notes

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About this document

This section describes the content reflected in this document, including:

- [Release notes information](#)
- [Intended audience](#)
- [Accessing future product updates](#)

Release notes information

These release notes include the following topics:

- [New features](#)
- [EVA storage system](#)
- [EVA compatability](#)
- [Operating constraints](#)
- [Storage System Scripting Utility for EVA](#)
- [Avoiding problem situations](#)
- [Host considerations](#)

Intended audience

This document is intended for use by:

- Customers who purchased the HP StorageWorks 4000/6000/8000 Enterprise Virtual Array (EVA4000/6000/8000) to use with the Linux® operating system
- HP customer service personnel responsible for installing and maintaining devices connected to EVA4000/6000/8000 storage systems.

Accessing future product updates

HP strongly recommends that customers sign up online using the Subscriber's choice web site:

<http://www.hp.com/go/e-updates>

- Subscribing to this service provides you with e-mail updates on the latest product enhancements, newest versions of drivers, and firmware documentation updates as well as instant access to numerous other product resources.
- After signing up, you can quickly locate your products by selecting **Business support** and then **Storage** under Product Category.

New features

The following are major enhancements included in this EVA4000/6000/8000 storage system release:

- Support is provided for Red Hat® EL Advanced Server 4.0.
- Support is provided for EVA4000/6000/8000 controller software 5.02.
- Ability to coexist with other types of multipathing software on the same server.

EVA storage system

EVA documentation

For a complete library of EVA and related documentation, see the following web sites:

<http://www.hp.com/go/eva4000>

<http://www.hp.com/go/eva6000>

<http://www.hp.com/go/eva8000>

Product support information

The latest product support release information and downloads for storage products are available at the following web site:

<http://h18006.www1.hp.com/storage/index.html>.

Supported configurations

Supported configurations are described in the Enterprise Virtual Array QuickSpecs; see the following web site:

<http://h18006.www1.hp.com/storage/arrayssystems.html>

The extended interoperability of the heterogeneous storage area network (SAN) allows you to mix several types of HP StorageWorks storage systems. The *HP StorageWorks SAN design reference guide* is a detailed guide for SAN configurations, which is available at the following web site:

<http://h18004.www1.hp.com/products/storageworks/san/documentation.html>

EVA compatibility

Table 1 lists the operating systems specifications.

**NOTE:**

Table 1 contains current minimum-level operating system specifications at the time of the EVA4000/6000/8000 release. Some component versions may change due to revision. For the latest information, see the following web site: <http://h18006.www1.hp.com/storage/index.html>.

Table 1 Operating systems specifications

Platform	OS version	Kernel	FCA (HBA)	Adapter BIOS/EFI	Adapter driver
X86 Red Hat EL [ES/AS]	2.1	2.4.9-e.49 UNI 2.4.9-e.49smp 2.4.9-e.49enterprise 2.4.9-e.57 UNI 2.4.9-e.57smp 2.4.9-e.57enterprise 2.4.9-e.59 UNI 2.4.9-e.59smp 2.4.9-e.59enterprise	FCA2214 281541-B21 FCA2214DC 321835-B21	1.45	7.05.00 or later
X86 Red Hat EL [ES/AS/WS]	3	2.4.21-20.EL 2.4.21-20.ELsmp 2.4.21-27.EL 2.4.21-27.0.1.EL 2.4.21-15.ELsmp 2.4.21-27.0.2.EL 2.4.21-2.0.2.ELsmp	FCA2214 281541-B21 FCA2214DC 321835-B21	1.45	7.05.00 or later
IA64 Red Hat EL [ES/AS]	2.1	2.4.18-e.52 UNI 2.4.18-e.52-smp 2.4.18-e.52-enterprise 2.4.18-e.56-UNI 2.4.18-e.56-smp 2.4.18-e.56-enterprise	A6826A	EFI 1.42	7.05.00 or later

Platform	OS version	Kernel	FCA (HBA)	Adapter BIOS/EFI	Adapter driver
IA64 Red Hat EL [ES/AS/WS]	3	2.4.21-20.EL 2.4.21-20.ELsmp 2.4.21-27.EL 2.4.21-27.ELsmp 2.4.21-27.0.1.EL 2.4.21-27.0.1.ELsmp 2.4.21-27.0.2.EL 2.4.21-2.0.2.ELsmp	A6826A	EFI 1.42	7.05.00 or later
X86_64 (32 Bit Mode) Red Hat EL [ES/AS]	2.1	2.4.9-e.49 UNI 2.4.9-e.49smp 2.4.9-e.49enterprise 2.4.9-e.57 UNI 2.4.9-e.57smp 2.4.9-e.57enterprise 2.4.9-e.59 UNI 2.4.9-e.59smp 2.4.9-e.59enterprise 2.4.9-e.62 UN 2.4.9-e.62smp 2.4.9-e.62enterprise	FCA2214 281541-B21 FCA2214DC 321835-B21	1.45	7.05.00 or later
X86_64 Red Hat EL [AS/ES/WS]	3	2.4.21-20.EL 2.4.21-20.ELsmp 2.4.21-27.EL 2.4.21-27.ELsmp 2.4.21-27.0.1.EL 2.4.21-27.0.1.ELsmp 2.4.21-27.0.2.EL 2.4.21-2.0.2.ELsmp	FCA2214 281541-B21 FCA2214DC 321835-B21	1.45	7.05.00 or later

Platform	OS version	Kernel	FCA (HBA)	Adapter BIOS/EFI	Adapter driver
X86, X86_64 Red Hat EL [AS/ES/WS]	4	2.6.9-5.EL 2.6.9-5.0.3.EL 2.6.9-5.0.5.EL 2.6.9-5.ELsmp 2.6.9-5.0.3.ELsmp 2.6.9-5.0.5.ELsmp 2.4.9-e.62 UN 2.4.9-e.62smp 2.4.9-e.62enterprise	FCA2214 281541-B21 FCA2214DC 321835-B21	1.45	8.00.02 or later
IA64 Red Hat EL [AS/ES/WS]	4	2.6.9-5.EL 2.6.9-5.0.3.EL 2.6.9-5.0.5.EL 2.6.9-5.ELsmp 2.6.9-5.0.3.ELsmp 2.6.9-5.0.5.ELsmp	FCA2214 281541-B21 FCA2214DC 321835-B21	EFI 1.42	8.00.02 or later
X86, X86_64 SLES [ES/SS]	8 SP3 and SP4	2.4.21-273 UNI 2.4.21-273 SMP 2.4.21-278 UNI 2.4.21-278 SMP 2.4.21-281 UNI 2.4.21-281 SMP 2.4.21-286 UNI 2.4.21-286 SMP 2.4.9-e.62 UN 2.4.9-e.62smp 2.4.9-e.62enterprise	FCA2214 281541-B21 FCA2214DC 321835-B21	1.45	7.05.00 or later
IA64 SLES [ES/SS]	8 SP3 and SP4	2.4.21-273 UNI 2.4.21-273 SMP 2.4.21-278 UNI 2.4.21-278 SMP 2.4.21-281 UNI 2.4.21-281 SMP 2.4.21-286 UNI 2.4.21-286 SMP	FCA2214 281541-B21 FCA2214DC 321835-B21	EFI 1.42	7.05.00 or later

Platform	OS version	Kernel	FCA (HBA)	Adapter BIOS/EFI	Adapter driver
X86, X86_64 SLES [ES]	9 and 9 SP1	2.6.5-7.104 UNI 2.6.5-7.104 SMP 2.6.5-7.108 UN 2.6.5-7.108 SMP 2.6.5-7.111 UNI 2.6.5-7.111 SMP 2.6.5-7.139 UNI 2.6.5-7.139 SMP 2.6.5-7.145 UNI 2.6.5-7.145 SMP	FCA2214 281541-B21 FCA2214DC 321835-B21	1.45	8.00.02 or later
IA64 SLES [ES]	9 and 9 SP1	2.6.5-7.104 UNI 2.6.5-7.104 SMP 2.6.5-7.108 UN 2.6.5-7.108 SMP 2.6.5-7.111 UNI 2.6.5-7.111 SMP 2.6.5-7.139 UNI 2.6.5-7.139 SMP 2.6.5-7.145 UNI 2.6.5-7.145 SMP	FCA2214 281541-B21 FCA2214DC 321835-B21	EFI 1.42	8.00.02 or later

Table 2 describes the Linux storage system attachments.

Table 2 Platform/storage system attachment

Platform or operating system	Platform HBA SAN attachment	QLogic Multipath support	EVA SAN attachment	EMA/ESA 12000, EMA 16000, MA/RA8000, MA6000 storage system SAN attachment
X86 Red Hat EL 3 [ES/AS/WS] Red Hat EL 2.1 [ES/AS] Red Hat EL Advanced server 4 SLES 8 [ES/SS] SP3 and SP4 SUSE Linux Enterprise and Standard server 9	FCA2214 FCA2214DC A6826A	Yes Yes Yes	Single-Path Multipath	F-Port using FABRIC topology Transparent or Multiple-path failover
IA64 Red Hat EL 2.1 [ES/AS] Red Hat EL 3 [ES/AS/WS] Red Hat EL Advanced server 4 SLES 8 [ES/SS] SP3 and SP4 SUSE Linux Enterprise and Standard server 9				
X86_64 Red Hat EL 2.1 [ES/AS] Red Hat EL 3 [AS/ES/WS] Red Hat EL Advanced server 4 SLES 8 [ES/SS] SP3 and SP4 SUSE Linux Enterprise and Standard server 9				

Switch support

This EVA4000/6000/8000 storage system release supports the Fibre Channel switches and firmware versions listed in the *HP StorageWorks SAN design reference guide*, which can be downloaded from the following web site:

<http://h18000.www1.hp.com/products/storageworks/san/documentation.html>



NOTE:

HP recommends that you do not mix switch firmware versions in your SAN. It is considered a best practice to uniformly upgrade all switches in the SAN.

Integrity servers support

The following Integrity servers are EVA-compatible.

- rx8620
- rx7620
- rx5670
- rx4640
- rx2600
- rx1600

Multiple path support

Linux with EVA storage requires multipathing software to achieve high-availability multiple-path capability.

For detailed multipathing information, see the *HP StorageWorks Using the QLogic HBA driver for single-path or multi-path failover mode on Linux systems application notes*

Operating constraints

You can find information about operating constraints specific to the EVA4000/6000/8000 hardware and Command View EVA in their respective release notes.

Failover/failback

Failback preference settings for the HSV controllers are specific to the operating system. Refer to the HP StorageWorks Operating system Enterprise Virtual Array release notes for details.

Storage System Scripting Utility for EVA

The HP StorageWorks Command View EVA software includes a Storage System Scripting Utility (SSSU). You can download the HP StorageWorks Command View EVA with SSSU from the following web site:

<http://h18006.www1.hp.com/products/storage/software/cmdvieweva/index.html>

Avoiding problem situations

The following sections describe problems that may arise and their solutions.

Known problems

You can find information about problems specific to the EVA hardware and Command View EVA in their respective release notes.

QLogic failover preference

If you are using the built-in failover functionality of the QLogic driver, set the virtual disk failover preference to **Path A Failover** or **Path B Failover** in the Command View EVA host properties page. Failure to do so can cause I/O errors when a failover occurs.

Codeload usage

When a fully configured system is running at maximum load, codeload functionality can be ineffective due to timing constraints. The system may I/O time-outs before codeload is complete. Therefore, you should always perform storage system firmware upgrades at an off-peak time.

Setting up a custom host mode on the EVA4000/6000/8000 storage system and Linux operating system

Linux hosts configured with the `Linux` host mode on EVA4000/6000/8000 storage systems must use a custom host mode to define the characteristics of the Linux host. Using the `Linux` host mode with the EVA4000/6000/8000 can result in the inability of the server to see devices through the operating system and see i/o errors during a controller resynchronization.

If you cannot see your devices through the Linux SCSI layer (`/proc/scsi/scsi`) but you can see the devices in `/proc/scsi/qla2300` (`/proc/scsi/qla2xxx` for 2.6 kernels), the host mode definition may be the issue. In such cases, use one of the following procedures to set up a custom host mode.

Setting up a custom host mode on a new configuration

To set up custom host mode for Linux on newly configured EVA4000/6000/8000 storage systems:

1. Browse to the **HP StorageWorks Command View EVA** management station
2. Click on the **command view eva** icon.
3. Select an **array system** and click on the **Hosts** folder.
4. Click on the **Add a New Host** tab and enter the following information:
 - a. Enter the *host name*.
 - b. Enter the *host IP Address* (if available) or set to **Dynamic IP**.
 - c. Select the HBA port world wide (WW) name of the Fibre Channel host bus adapter for this host from the drop down menu or enter the host name manually.
 - d. Select **Custom** from the drop down menu for the Host OS.
 - e. Enter 00000020220008AA *exactly* as shown in the **Custom mode number** field.



NOTE:

The number 00000020220008AA consists of 16 hexadecimal characters.

- f. Enter information into the **Comments:** box if desired. The **Comments:** box is optional.
5. Click **OK** to verify that you have entered the custom host mode number correctly.



NOTE:

If an error occurs, reenter the exact custom host mode number and click **Save Changes** to store the information.

Setting up custom host mode on an existing configuration

Use the following steps to set up custom host mode for Linux on EVA4000/6000/8000 storage systems If you already have an existing host mode defined as `Linux` through **Command View EVA:**

1. Browse to the **HP StorageWorks Command View EVA** management station
2. Click on the **command view eva** icon.
3. Select an **array system** and click on the **Hosts** folder.
4. Select the host that needs to be changed from the existing host names.
5. Select **Custom** from the drop down menu for the **Operating System Type** field.
6. Enter 00000020220008AA *exactly* as shown in the **Custom type** field.
7. Enter information into the **Comments:** box if desired and click on the Save changes tab at the top. The **Comments:** box is optional.

The host mode change is effective after you complete **Save Changes**. No further actions are required.

Boot Support

Boot over SAN is only supported on the following Linux operating systems:

- SLES8 SP4
- SLES9 SP1
- RHEL4
- RHEL 2.1 U7
- RHEL 3 U5

Host considerations

This section contains information and important reminders about the host servers.

Changing the Proliant BIOS

If you have a Proliant server with more than three host bus adapters (HBA) installed, you must change a setting in the BIOS. Otherwise, you may not be able to see all attached devices. To change the setting:

1. Press **F1** to access the ROM-Based Setup Utility (RBSU) during POST.

This is normally after 5i Disk Array initialization.

2. Select **System Options > OS Selection > Linux**.
3. Select **Advanced Options > MPS Table Mode**.
4. Select **Auto Set Table**.
5. Press **ESC** twice, and then press **F10** to save the configuration.